b) separation of at least a part of the water comprised in the first aqueous phase provided in process step a) from at least a part of at least one component ii. to obtain a second aqueous phase and an organic phase, wherein the organic phase comprises at least one component ii., and wherein the second aqueous phase is depleted in at least one component ii. compared to the first aqueous phase;

c) optionally, separation of at least a part of at least one organic compound from the second aqueous phase obtained in process step b) to obtain a third aqueous phase;

d) optionally, separation of at least a part of at least one component ii from the organic phase obtained in process step b).

3. The process according to claim 1 ~~or claim 2~~, wherein process step a4) comprises process step

aa4) separation of a high boiler phase from the crude organic phase.

4. The process according to claim 3, wherein at least a part of the high boiler phase is introduced to the first aqueous phase obtained in process step a3) or provided in process step a).

5. The process according to any one of the preceding claims, wherein the separation in process step b) comprises the process steps:

b1a) extraction of at least a part of the first aqueous phase obtained in process step a3) or provided in process step a) with an extraction agent to form the second aqueous phase and an extraction phase comprising at least one component ii.;

b1b) at least partial separation of the second aqueous phase from the extraction phase;

6. The process according to claim 5, wherein the separation in process step d) comprises the process steps

d1a) separation of at least a part of the extraction agent from the extraction phase to obtain an extract comprising at least one component ii.;

d1b) optionally, separation of at least a part of at least one component ii. from the extract.

17. The process according to any one of claims 14 to 16, wherein at least a part of the at least one ester obtained in at least one of steps g), h) and j) is used as extraction agent in process step b1a).

18. The process according to any one of claims 14 to 17, wherein the at least one ester is based on a C_1 – C_4 carboxylic acid and a C_1 – C_4 alcohol.

19. The process according to any one of the preceding claims, further comprising the step

aa1) splitting of methyl tert-butyl ether to obtain at least one C_4 compound and methanol,

wherein at least a part of the at least one C_4 compound is supplied as feed to the gas phase oxidation of at least one of process steps a1).

20. The process according to claim 19, wherein the methanol obtained in process step aa1) is supplied to process step g).

~~21. A device for production of at least one of methacrylic acid and a methacrylic acid ester, comprising at least the following components in fluid-conducting communication with each other:~~

- ~~a gas phase oxidation unit (A1),~~
- ~~a quench unit (A2),~~
- ~~a first extraction unit (A3),~~
- ~~a first separation unit (A4),~~
- ~~optionally, a first esterification unit (A5),~~
- ~~a second separation unit (B),~~
- ~~optionally, a third separation unit (C),~~
- ~~optionally, a fourth separation unit (D),~~

~~wherein the first separation unit is a thermal separation unit comprising at least one bottom outlet in the lower third thereof, the at least one bottom outlet being in fluid-conducting communication with at least one inlet of the second separation unit (B) and wherein the second separation unit (B) serves to separate at least part of the water comprised in an aqueous phase from at least a part of at least one organic compound.~~